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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO. <i>AK</i>
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EXAMINER

ART UNIT	PAPER NUMBER
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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/145,595

Applicant(s)

LEE, JI UNG

Examiner

Karabi Guharay

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 36-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 36-46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____

18) ☐ Interview Summary (PTO-413) Paper No(s). ____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other.

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Response submitted in Paper # 6, filed on 11/6/00 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 36-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud et al. (U.S. 5,653,619).

Regarding claim 36, Cloud et al. disclose a field emission device (see column 1, line 15) comprising a number of cathodes formed in rows along a substrate (11), a gate insulator (18) formed along the substrate and surrounding the cathodes (see Fig 1), a number of gate lines (15) formed on the gate insulator (18) (see column 1, lines 60-67), an anode (16) (see column 4, lines 6-7), the anode (16) being formed orthogonal and opposing the cathodes (see column 2, lines 13-14).

Though Cloud et al. do not exemplify the anode in form of strips (plurality of anodes) however, it is conventional to have number of anodes in matrix addressed array of cold cathode emission devices (see U.S. 5,675,210).

Cloud et al. further disclose that a distance separating the number of cathode emitter tips from the number of gate lines is significantly thinner than a separation distance separating the number of gate lines and the substrate (see Fig 1, Fig 2, Fig 2B).

Method limitations in claim 36 and claim 37 have not been given patentable weight since the method of forming the device is not germane to the issue of patentability of the device itself (see MPEP 2113).

Regarding claim 38, Cloud et al. disclose that the number of cathodes (13) include polysilicon cones (see column 3, lines 60-66).

Regarding claim 39, Cloud et al. disclose that the cathodes (13) includes metal silicides (see column 7, lines 54-59).

Regarding claim 40, Cloud et al. disclose that the substrate (11) includes glass (see column 3, line 58).

Regarding claim 41, Cloud et al. disclose that gate lines (15) include refractory metals (see column 6, lines 1-2).

Regarding claim 42, Cloud et al. disclose that the number of gate lines (15) include doped silicon (see column 6, lines 2-3).

Claim 43 is rejected for the same reason as claim 36.

Claim 44 is rejected for the same reason as claim 37.

Claim 45 is rejected for the same reason as claim 39.

Claim 46 is rejected for the same reason as claim 41.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Doan et al. (U.S. 5,259,799); Kim (U.S. 5,675,210).

Response to Arguments

Applicant's arguments filed 11/6/00 in paper # 6 have been fully considered but they are not persuasive. Applicant argued that Cloud et al. describe an

insulating layer 18 (Fig 3), which is **preferably** conformal insulating layer. Cloud et al. disclose that "the thickness of this insulating layer 18 will substantially determine both the gates 15 to cathode 13 spacing, as well as the gates 15 to substrate 11". Consequently, respective distances are same, which is in contrary to the applicant's structure. However, Cloud also teaches that "the insulating layer 18 can be deposited to a level below the tip 13, as shown in Fig 2. Alternatively, insulating layer 18 can be deposited to a level substantially equal to or slightly higher than the level of cathode emitter 13 as shown in Fig 2A and Fig 2B" (see lines 51-55 of column 5). Thus, as disclosed by Cloud, the insulating layer 18, in Fig 2, Fig 2A, and Fig 2B, are not conformal insulating layer, thus the thickness of the insulating layer is not constant over the entire region of the substrate 11. Consequently, the spacing between the gate 15 to cathode tip 13 and gate 15 to substrate 11 are not equal, rather separation of cathode emitter tip to gate line is significantly thinner than a separation distance separating the number of gate line and the substrate (shown in Fig 2, Fig 2A, Fig 2B).

Conclusion

This is a Continued Prosecution Application (CPA) of applicant's earlier Application No. 09/145595. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone numbers for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.G.

Karabi Guharay
Patent Examiner
Art Unit 2879



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